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Abstract

Promoting undergraduate nursing students' learning in simulated care can be achieved through dynamic scenario-based training sessions that are documented using simple video equipment.

One valuable aspect of this kind of training is the subsequent reflective dialogue that takes place between the teacher and the students during the examination.

The aim of the present paper is to describe bachelor nursing students' experiences of being video-recorded during an examination with a simulated patient in emergency care.

The study was descriptive in design and used a qualitative approach with written answers to open-ended questions; 44 undergraduate nursing students participated.

A latent content analysis resulted in three themes: (1) *Visualization may cause nervousness at first*, (2) *Visualization promotes dialogue and acknowledgement*, and (3) *Visualization promotes increased self-knowledge and professional growth*.

The conclusion is that video-recording is a good way for undergraduate nursing students to develop skills in emergency care situations and to understand their own actions; it may also help them increase their self-knowledge.

Keywords

Undergraduate nursing students, video-recording, feedback, nursing profession, examination

Introduction

Trauma patients are very common in emergency care. The term trauma indicates that patients have been exposed to high-energy violence and have developed or may develop life-threatening injuries. When a severely injured patient is admitted to the emergency ward, staff must focus on life-threatening injuries and perform life-saving measures immediately. When these lifesaving measures are implemented under stressful conditions and under time pressure, it is easy to detect and treat major visible injuries, while invisible, life-threatening injuries may be forgotten and therefore worsen. In order not to miss serious injuries in trauma care, emergency staff follow simple guidelines for emergency care, called the A to E principles. This means examining the patient's Airway (airway with examination of the neck and back), Breathing (respiration), Circulation (blood circulation), Disability (brain and nervous system) and Exposure (external inspection) (1).

Simulator-based training

Becoming a competent nurse requires that theoretical and practical knowledge be integrated and adapted to meet the needs of individual patients. The training sessions with simulated patients give students the opportunity to practice their clinical reasoning based on both their theoretical and their practical knowledge. Through simulator-based training, students are able to practice their skills and learn in a safe environment, without risk of patient injury (2, 3, 4). In this training environment, students can also learn from mistakes that may be made visible during the practical exercise (4). Clinical simulation also aims to increase students' confidence, and previous research

has shown that simulation boosts students' faith in their own ability to put their new skills into practice (5, 6, 7).

Video-recording with feedback

Scenario-based training sessions can be recorded using simple video equipment, and the most valuable aspect of training with video documentation is that it enables recall and feedback. With careful preparation of patient cases and feedback to students, the training can be both realistic and reality-based (3). Video-based examinations in which students can be involved and evaluate their own efforts have proven to be effective in improving academic and clinical performance and in promoting future professional development for nursing students (8, 9, 10). With video-recording, students can self-assess how well they performed in their examination they can observe their own skills and evaluate whether or not they have achieved the examination goals. This, in turn, can promote students' self-esteem (11, 12). Training scenarios in which participants receive feedback can provide rich learning opportunities in a learning environment that bridges the gap between the classroom and clinical reality (13). If students can detect errors during the simulation, they will be less likely to repeat the same mistakes in a clinical setting (14). Feedback enables students to participate actively in the learning process, and to improve their understanding of the learning objectives (15, 16).

Parish et al. examined 128 medical students who had been video-recorded in a clinical examination. Students were randomized in to two feedback groups: one in which feedback was given individually, the other in groups of four students at a time. Following feedback, the medical

students completed a questionnaire with 13 questions on the usefulness of the feedback session and the appropriateness of the examination form. The study showed that most students (80%) had a positive experience and found the situation less stressful than they had expected; they reported that they would not have wanted to do it in any other way. The students who had received individual feedback supported by observation of the video-recording reported a significantly higher level of satisfaction with the feedback and rated the examination as a more positive learning opportunity than did those who had received feedback in a group (17).

Education and examination in emergency care help students understand and carry out the A to E principles. At our university, this examination of students' treatment of an emergency care patient is conducted with the help of video-recording. In the present study, our goal was to try to understand how undergraduate nursing students experience examination with video-recording and associated feedback. To our knowledge, no previous research on nursing students has looked at video-recorded examination in a simulated emergency care situation. Our aim was to describe undergraduate nursing students' experiences of being video-recorded in an examination with a simulated patient in an emergency care situation.

Method

Design

The study was descriptive in design and used a qualitative approach with written answers to open-ended questions; the answers were analyzed using content analysis (18).

Participants

All undergraduate nursing students attending semester five at a Swedish university, $n = 73$, underwent individual examination in an emergency care situation in January 2011. Ten students were absent at the time of data collection, and of the 63 students who remained, 44 chose to participate in our study. The characteristics of the 44 participating undergraduate nursing students are described in Table 1. During the individual examination, all students were video-recorded and afterwards received individual feedback from the examining teacher. The feedback concerned the students' knowledge and skills, and they had the opportunity to comment on and discuss their performance during the session.

Table 1

Characteristics of the 44 undergraduate nursing students in the study.

Gender (men / women)	2 men / 42 women		
			Number of years of experience in the care sector
Age	20-29 years	28	0-9
	30-39 years	12	0-16
	40-50 years	4	9-20

Data Collection

The students were asked to describe their experience by writing down their answers to six open-ended questions formulated by the researchers. They had one hour at their disposal, but only a few used the whole hour. They were asked to describe how it felt to be video-recorded, their experiences of watching the video tape and seeing their performance, whether their perception of their actions was consistent with what they saw on the film, how it felt to discuss the examination

results with the teacher, how it felt to receive feedback and how well they thought this form of examination suits them. The students answered the questions on a single occasion in February 2011, one week after the last examination. The fourth author, who did not participate in the examination, distributed the questionnaire and collected the written answers.

Ethical considerations

The study was approved by the Regional Ethics Committee in Uppsala (2010/356). The students were informed both orally and in writing about the study by the fourth author three weeks prior to the examination. They were informed about the aim of the study, that participation was voluntary, that they could withdraw from the study at any time, and that their responses would remain confidential. All answers were collected and placed in a sealed box, which was kept in a locked room. The participating students gave their written consent to participate in the study. The questions were answered confidentially, and the authors had no way of identifying individual students. This is in line with the ethical recommendations of the Swedish Research Council (19).

Data Analysis

The data were analyzed using a method of qualitative content analysis inspired by Graneheim and Lundman (18). To become familiar with the content of the students' written answers, the first and second authors read all the answers several times. The original text was then divided into meaning units in line with the study aim to describe bachelor nursing students' experiences of being video-recorded during an examination with a simulated patient in emergency care. Thereafter, each meaning unit was sorted using codes, and the authors searched for patterns in these codes. In the next step, the codes were compared based on content similarities and

differences in order to abstract them to a higher level, from this process emerged eight categories that characterized the data.”

In the final step, the underlying meaning in the form of three interpretive themes emerged.

During the entire interpretive process, all authors continuously discussed the analysis. The first and second author began the main analysis of the written text. Thereafter all four authors jointly read and commented on the findings in a creative and reflective discussion until suitable categories and themes were agreed upon.

Results

The findings are presented by discussing the three themes and the categories from which they emerged (see Table 2). Excerpts from the written answers are provided as illustrations.

Visualization may cause nervousness at first

The theme *visualization may cause nervousness at first* emerged from the following interpretive categories: *feelings of tension prior to seeing oneself* and *feelings of apprehension prior to putting oneself on display*. Video-recording during examination helped students acquire an understanding and knowledge of how they performed in the situation, in that they were allowed to watch themselves afterwards. Visualization following examination gave students the opportunity to test the thoughts, intuition and feelings they had prior to video-recording, that is, they got to see and interpret their internal imaginations after the examination session. For the most part, this resulted in students reevaluating their initial representations. The tension and apprehension they had experienced prior to seeing themselves perform both physically and verbally turned out to be largely invisible in the video-recordings. At times, the students seemed

to express the feeling that the video-recording might have affected their performance negatively, but they were also able to reevaluate this and recognize, through visualization, the nursing actions that were carried out well.

Feelings of tension prior to seeing oneself

The students described a feeling of tension prior to seeing themselves because they were to be video-recorded as well as a feeling of tension related to seeing themselves examined. They felt it would be embarrassing to see themselves, and that their level of nervousness would be higher during this kind of examination compared with non-video-recorded examinations. Some even expressed feeling that the entire situation would be horrible. The students reported that these negative thoughts disappeared as soon as the examination and video-recording had begun.

“I thought it would feel terrible and I was nervous beforehand. But once we’d done it I thought it felt okay.”

“I thought it would be more tense than without the camera but it wasn’t. I didn’t really notice so much that we were being filmed.”

Feelings of apprehension to putting oneself on display

Here, the students described thinking it was unpleasant to see themselves on video-tape and that they were more focused on what they looked like during the examination than on performing the nursing tasks. Some even thought hearing their own voice was difficult, and seeing themselves in

action sometimes led to unpleasant associations. Others expressed wanting to get out of the video-recording altogether.

“I didn’t like looking at myself and I focused more on how I looked and what I sounded like than on what I said while we were watching the video.”

“I thought seeing myself on the video was horrible and I’d have preferred not doing it.”

“Horrible! Do I really look like that when I work? I’m also overweight so it was a difficult experience.”

“I didn’t like hearing my own voice.”

“It’s never fun to see yourself in action and hear your own voice.”

Visualization promotes dialogue and acknowledgement

The theme *visualization promotes dialogue and acknowledgement* emerged from the interpretive codes and categories: *learning through seeing and simultaneous discussion* and *learning through observing one’s own actions*. Learning through visualization in an examination context gives students the opportunity to use the video-recordings to repeat and reinforce those aspects of nursing they performed well. The students themselves could identify the actions that were not as successful and then, through a dialogue with the teacher, get feedback on the aspects that felt difficult or unclear. This can give students the prerequisites they need to reinforce their internal representations with ideas about how to improve the nursing care situation. By watching the video-recordings, students can repeat their nursing actions and at the same time either learn they

have achieved the examination goals or learn what aspects were missing. This, in turn, can stimulate learning, because students have their internal visualized representations to continue working with.

Learning through seeing and simultaneous discussion

The students described how watching themselves and simultaneously discussing their actions became an additional learning opportunity. When they discovered something they had questions about, *they* could speak with the teacher immediately about what they had observed by stopping the video-tape and discussing the situation. The students felt it was important to be able to explain why they acted in a certain way, and the result was that the teacher's feedback was even clearer than it would have been if it had been written.

“You could throw in explanations while you sat there and discussed things, which is good.

Explain why you did something in a particular way.”

“It felt so good, like the teacher really took my learning and performance very seriously.”

“It felt good, you could discuss whether you had missed something.”

“Talking with the teacher while watching the video-recording together meant that we could both see the same things and that I, as a student, could see myself when I did something wrong.”

The students also reported that the teacher's responses were of great importance to their learning, and the teacher's concrete discussions were considered a valuable part of the examination.

According to the students, being able to watch themselves and get individual responses from the teacher was a positive experience. They described coming to understand how their own strengths and weaknesses could be manifested during the nursing situation. One could say that, through their dialogue with the teacher, the students developed tools for reflecting on their own behavior.

“It was a positive experience for me to be able to watch the film with the teacher afterwards, and to reflect on what I did or didn't do during the examination.”

“It felt like a thorough examination and I got feedback on everything I did, so I learned a lot both about my weaknesses and my strengths.

“It was good to hear right there, immediately, what you'd done well and less well while everything was fresh in your mind. Still it was tense and sort of embarrassing to be judged face-to-face.”

Learning through observing one's own actions

Learning through observing one's own actions was something the students did spontaneously when they watched the video-recordings. Because they could themselves see and comment on how they carried out the nursing actions, they had an opportunity to evaluate their behavior and identify aspects of it that were good and aspects that could be improved. It became clear to the students which operations they were to have performed during the examination, and they felt that this method of examination gave a fair picture and helped to avoid misunderstanding.

“It was really good. You learned a lot by watching and judging yourself. The best examination I’ve ever had, to be filmed and see yourself, better understanding.”

“It was easier to remember exactly what happened during the examination and easier to see what you’d forgotten and what you’d done well.”

“Easier to see what you do right and wrong then because otherwise you don’t really remember what you’ve done.”

Visualization promotes increased self-knowledge and professional growth

The theme *visualization promotes increased self-knowledge and professional growth* emerged from the interpretive categories: *watching oneself gives increased insight, learning by observing oneself under stressful circumstances* and *learning in order to function in the nursing role*.

The experience of gaining self-knowledge through visualization emerges clearly from our interpretation of the students’ written statements. Because visualization enables the use of several senses, the students were able to see, hear and indirectly feel and indirectly get a sense of their own behavior. Thus, the method promoted increased self-insight and thereby increased self-knowledge concerning the whole of their actions in the nursing situation. The stress students may express in a nursing situation is incorporated into this self-insight, and contrasting pictures to this behavior can be created in the students. According to the students, the professional tone required of a nurse was made clear through visualization using the video-recording, and they were able to imagine pictures of themselves in their future profession.

Watching oneself gives increased insight

Watching themselves in action in the video-recordings gave the students increased insight into their own personal image, and this influenced how they saw themselves. It also influenced their self-confidence in their ability to perform correctly. The students sometimes reported seeing fewer examples of inadequate actions than they had expected, and this could lead to reevaluation of their actions as a whole.

“I looked more confident than I felt while I was performing the tasks. That was a positive experience.”

“I’m impressed with the decisions I made and how calm I was!”

“I realized that I speak very quietly and it made me think maybe I should talk louder and more clearly.”

Learning by observing oneself under stressful circumstances

Learning by observing oneself under stressful circumstances was considered both a positive and a negative experience. The positive aspect was that it was beneficial to see one’s own reactions under stress, and the negative aspect was that the stress itself could not be concealed. The students reported that, despite their stress, they could see that they were able to deal with the nursing situation.

“It was a good experience to get to see how I acted during such a stressful situation.”

“I was almost ashamed of my examination. My performance wasn’t so bad, but still I was very stressed-out and nervous and you could see it in the video. It wasn’t all that much fun to see what I’m like when I’m nervous.”

“Sort of weird to see yourself in action on film. But it’s interesting to become more aware of how you act and react in stressful tense situations.”

Learning in order to function in the nursing role

The students described the importance of being allowed to see how professionally they behaved, despite the fact that they were interacting with a dummy. According to the students, visualization gave them the opportunity to prepare for their future professional role. They discussed the importance of polishing both their good and their less favorable traits – traits that are significant in the nursing role.

“It was fun to see how professional I can be, even though I was evaluating a dummy. It looked like I really took the tasks seriously.”

“I reacted when I saw the video-recording and thought, yeah, I can help people who are critically ill, but also that I still need practice doing it.”

Discussion

The primary aim of the present study was to shed light on undergraduate nursing students' experiences of being video-recorded during an examination and of receiving feedback on their performance. The examination involved providing emergency care for a simulated patient. The results revealed variation in their experiences, though positive experiences predominated. The students reported that knowing the examination would be video-recorded created tension. For some these negative thoughts disappeared, while for others the visualization method led to unpleasant associations. All of the students felt the dialogue with and responses from the teacher in connection with visualized feedback were beneficial, and this process was viewed as an extra learning opportunity. The students described how this opened their eyes to their own actions, and that visualization provided an opportunity to increase self-knowledge, both as a person and regarding their role as a nurse. The video-recording allowed them to see clearly and reconnect to what they had done and what they had neglected to do, which enabled the students to prepare for their future professional role.

Our undergraduate nursing students described experiences similar to those reported in Parish et al., who showed that medical students viewed video-recording and subsequent examination as a positive learning opportunity and that they found the situation to be less stressful than they had expected (17). According to Yoo et al., video-based self-assessment leads to increased growth and development of personal self-knowledge. Moreover, they recommended the method, despite the fact that it does not suit everyone and in all instances must be used with care (10). Linderoth discussed the importance of the teacher being aware that simulation is complex and that students may find it difficult to understand and act, because the situation requires interactive work on their

part (20). A number of students in our study reported a feeling of tension both prior to being video-recorded and prior to seeing themselves. For most students these negative thoughts disappeared, but a few individuals were unable to overcome the problem. Like Linderoth, we believe it is important for teachers to be aware that negative reactions can occur; we also feel that more frequent use of video-recording would perhaps allow students to become accustomed to the method, thus minimizing negative thoughts and reactions.

The students felt it was important to have the opportunity to talk with the teacher and get his/her responses. According to the students, being alone with the teacher and hearing his/her comments was unusual and somewhat disagreeable, but at the same time they described it as the best part of the examination. Freire claimed that we acquire knowledge through communication with others as well as based on the reality we live in (21). We create this knowledge with others through reflection and action. In Freire's view, dialogue is the key note on which education and social change are based. The foundation of dialogue is trust in both humankind and sincere discourse. According to Ramsden, when students described what is important in good teaching and examination, their most common comment was 'appropriate feedback.' He also suggested that appropriate feedback is important to good learning and that a teacher with a highly developed understanding of education knows that all student evaluations should be valuable to both the teacher and students (22). This approach to teaching focuses on the teacher/student relationship as involving interaction and dialogue rather than one-way communication. The teacher shows that he/she is interested in what the student has to say. He/she seeks evidence or clarification, or tries to persuade students to think about the issue from another angle, sometimes using challenging questions. Negative comments should be carefully balanced with positive ones.

Sensitivity is needed when giving critical feedback, as the aim is to help students learn something, not to cause defensiveness or discouragement.

Through visualization, the students were able to learn by “seeing themselves doing” and thereby discover their own strengths and shortcomings, as well as evaluate their own actions through discussion with the teacher. Observing oneself perform nursing actions can be seen as a further development of Dewey’s educational model “learning by doing”. The students first learn by acting, and then have an extra opportunity to see themselves in action. When students observe and evaluate their own behavior, there is no need for the teacher to be critical; he/she can instead focus on the positive (23). When students judge themselves, they discover on their own their strengths and weaknesses and assume greater responsibility for their own learning (11, 24)

There are few studies, such as ours, that have shown how students gain insights by observing themselves while discussing what they see with a teacher. Our students described gaining insight both into themselves as a person and into how they react under stressful circumstances. Yoo et al. also suggested that the method of video-based examination, in which the student participates in evaluating his/her own efforts, leads to increased professional self-knowledge regarding communication skills (10). According to them, visualization can start a reflective process in the student that encourages reflective practice. Such practice is associated with learning through new experiences and develops students’ skills and knowledge base. These conclusions are in good accordance with our results. Visualization is seen as an important strategy for stimulating nursing staff in their life-long learning and professional growth (25). The advantage of video-based feedback is that it gives students direct feedback on their own actions. Schön described this as “reflection-on-action,” which gives us, among other things, the opportunity to devote time to exploring why we behaved as we did. In this way, constellations of questions and ideas

concerning our activities and practice are developed that are considered an important aspect of the development of good nursing care (26). This is in line with our students' experiences. They reported that, through visualization, they achieved increased self-knowledge concerning the whole of their behavior in the nursing situation and that they could in this way imagine pictures of themselves in their future professional practice.

Methodological considerations

A qualitative latent content approach was used in the present study. The open-ended questions gave the students an opportunity to describe in writing the phenomenon as a whole. An overall picture emerged from the great variation in the students' experiences of being video-recorded during an examination. Many similarities were found, but also some differences in how students experienced the video-recording, which increased our understanding of the complexities of the examination situation (27). When studying human experiences, it is not always possible to create exclusive categories. In the present study design, dependability was achieved by collecting all of the students' written answers at the same time. Thereafter the analysis process could start by considering the whole material simultaneously. Credibility was achieved using illustrative quotations in the findings (27). All students were asked to participate in the study, and 44 of 63 agreed to take part. The students' age and years of caring experience before beginning their Bachelor's level studies varied. Students were of different ages and this might have affected their comfort with video-recording. Due to the present study design, it was not possible to relate opinions to age. Both men and women were represented, and because of this and the relatively large number of participants in the study, the findings may be generalizable to similar groups and settings (27). The first and second author were involved as teachers in the course, both in instruction and in the video examinations, but none of the teachers were responsible for data

collection, thus the ethical question of informants being in a dependent relation and feeling forced to answer the questions was addressed (19). The first and second authors are familiar with education in the area of emergency care. The third author is a researcher in both education and medicine, and the fourth author has considerable experience in using qualitative methods.

Conclusion

Undergraduate nursing students who had been video-recorded during an examination session and who had received feedback on their knowledge and skills reported different but overall positive experiences. However, the video-recording also created tension. The dialogue with and responses from the teacher in connection with the visualized feedback were perceived as positive, and the students saw the method as providing an extra learning opportunity. Visualization opened their eyes to their own performance and provided an opportunity for greater self-awareness, both as a person and in relation to the nursing profession. Watching the video-recording allowed the students to see themselves clearly; they saw what they had done and what they had failed to do, which gave them the opportunity to prepare for their future professional role.

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Table 2 Categories and themes emerging from analysis of video examinations.

Categories	Themes
Feelings of tension prior to seeing oneself Feelings of apprehension prior to putting oneself on display	Visualization may cause nervousness at first
Learning through seeing and simultaneous discussion Learning through observing one's own actions	Visualization promotes dialogue and acknowledgement
Watching oneself gives increased insight Learning by observing oneself under stressful circumstances Learning in order to function in the nursing role	Visualization promotes increased self-knowledge and professional growth

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